Accepted Manuscript

Research paper

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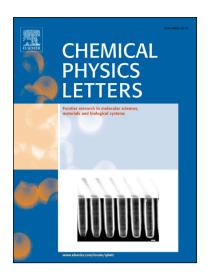
PII: S0009-2614(18)30201-X

DOI: https://doi.org/10.1016/j.cplett.2018.03.018

Reference: CPLETT 35499

To appear in: Chemical Physics Letters

Received Date: 6 December 2017 Revised Date: 12 March 2018 Accepted Date: 13 March 2018



Please cite this article as: K-X. Zhang, X. Wen, C-B. Yao, J. Li, M. Zhang, Q-H. Li, W-J. Sun, J-D. Wu, Synthesis, structural and optical properties of silver nanoparticles uniformly decorated ZnO nanowires, *Chemical Physics Letters* (2018), doi: https://doi.org/10.1016/j.cplett.2018.03.018

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Synthesis, structural and optical properties of silver nanoparticles uniformly decorated ZnO nanowires

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Abstract: Silver (Ag) nanoparticles decorated Zinc oxide (A-ZnO) nanowires have been successfully synthesized by two-step chemical vapour deposition and magnetron sputtering method. The X-ray diffraction patterns revealed their hexagonal wurtzite structure. SEM images indicated the Ag nanoparticles are distributed uniformly on the surface of A-ZnO nanowires. By extending the sputtering time, the atomic percent of Ag increased gradually. Moreover, the photoluminescence results demonstrated two major emission peaks for the A-ZnO nanowires. Where, the visible emission peaks were stronger than those of unmodified ZnO nanowires. These studies promise their potential applications in multifunctional optical devices.

Keywords: Zinc oxide; Photoluminescence; Magnetron sputtering; Chemical vapour deposition; Optical materials and properties

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